Long ago we should have left *that* question to the trade itself, but it is now clear that a policy of *laissez-faire* is no longer possible. The people must have food. The State has already taken partial control, and the logical development of such conditions seems to be the public organisation of the means of distribution and, if so, the control of profits as well as of prices.

Dr. Jenkins does not deal with these latter-day economic questions. The conditions are transient, and it is quite impossible for any man to get trustworthy information tending to elucidate them. Probably no administrator or office is big enough to deal adequately with the difficulties of the moment, and the situation must be left to resolve itself in the near future. On the other hand, it would be hopeless to attempt to study it without reference to the other fundamental questions which we have indicated. Is there really an impoverishment of the fishing-grounds, and, if so, what restrictions are necessary that this may be avoided? Regulation being necessary, what is the best form of administration? What is industrial efficiency as applied to the fisheries? Judged by the ratio of fish caught to the man-power employed, the inshore and longshore fishermen are inefficient, and their methods wasteful. But, that being so, is it in the national interest that a prolific, hardy, and versatile stock should be allowed to decline? What, above all, are the nature and value of the information which we use in order to decide upon these matters?

Even in present circumstances, then, there are fundamental problems that must be considered before we tackle those of the moment, and it is these with which the author deals. He gives a summary of the methods of sea-fishing employed in Great Britain, and an historical sketch of the development of the trawl- and herring-fisheries. This is based on prolonged literary research and is very well done. There are a summary of the legislation applicable to the industry, a short account of the British and foreign administrations, and a *résumé* of the chief results of the fishery commissions of the strictly modern period. A well-selected bibliography should enable the reader to follow the various discussions in greater detail than that which falls within the scope of the book. It is very proper that considerable weight should be given to the scientific side of the subject, and in his introduction the author deals most conveniently with the situation of the industry at the close of the war period, especially with regard to the reconstruction of the national administrations and the development of an adequate machinery for scientific and economic investigation. Altogether, the work is one that must be considered quite essential to anyone who seeks to discover, beneath the confusion of the moment, the natural conditions upon which the continued development of the national sea fisheries, as a whole, must necessarily depend.

J. J.

Notes.

THE annual meeting of the British Science Guild will be held at the Goldsmiths' Hall on Tuesday, June 8, at 3 p.m. Lord Sydenham, president of the Guild, will deliver an address on "Science and the Nation," and the president-elect, Lord Montagu of Beaulieu, will speak on "Some National Aspects of Transport." The adoption of the report on the Guild's work since the last annual meeting will be moved by Lord Bledisloe, and seconded by Sir Gilbert Parker. The Guild is extending its activities in several directions, and all who believe in the application of scientific knowledge and method to national affairs of every kind should give it support. Tickets of admission to the annual meeting may be obtained upon application to the Secretary, British Science Guild, 6 John Street, Adelphi, London, W.C.2.

AT the Imperial Entomological Conference to be held in London on June 1–11, the subjects to be discussed, although mainly relating to agriculture, are not the less on that account of great general interest, and ought to make a wide appeal. Mr. H. A. Ballou, just returned from an investigation of them in Egypt, will read a paper on "Cotton Pests," a subject which he has long studied in other parts of the Empire. Dr. R. S. MacDougall will read one on "Insects in Relation to Afforestation," which is a subject greatly needing attention in our own country at the present day. There will also be read important papers on the special insect pests of tea and other crops, as well as on the local insect pests of various places within the Empire; and amongst other subjects for discussion "The Education of Economic Entomologists" should prove attractive, the more so as Profs. Maxwell Lefroy and Sydney J. Hickson have promised to give their views upon it. The meetings are all to be held at the rooms of the Linnean Society, Burlington House, and visits have been arranged to Oxford, Cambridge, and the Rothamsted Experimental Station, Harpenden. "The Work and Finances of the Imperial Bureau of Entomology" will be considered at the business meeting on the first day, when, doubtless, there will be nothing but greatly deserved praise for the work, and very serious consideration in regard to the finances. It is to be hoped that as an outcome the Bureau will be enabled to carry on, unhampered and unimpaired, the extremely valuable work it has done during the seven years of its existence.

A PAN-PACIFIC Scientific Congress has been organised to meet at Honolulu on August 2–20. The programme of the congress is directed by the Committee on Pacific Exploration of the U.S. National Research Council, and the chairman is Mr. Herbert E. Gregory, director of the Bishop Museum at Honolulu. The papers to be read will deal with the present status of knowledge of anthropology, biology, geology, geography, and related sciences so far as they refer to the Pacific Ocean, and will place emphasis on the research work which it is desirable to inaugurate. The significance and bearing of the research work on other fields of study will be dealt with in considerable detail. It is suggested that in the working out of the problems only the ability and interest of the scientific workers should be taken into account, nationality and institutional rivalry being submerged for this purpose. Co-operation would eliminate unnecessary duplication of money and energy, and point the way to the best use of funds now available and to the utilisation of further endowments. The director of the museum is also organising a party consisting of an ethnologist, archæologist, botanist, and necessary staff, which will be stationed in 1920–21 at the Marquesas, Austral, Tongan, and Hawaian Islands to establish standards of the physical form, material culture, traditions, and languages of the Polynesians which may serve as a basis for the determination of the significance of changes produced by the overlapping of other races. A similar expedition is projected for 1921–22 westward to the Caroline Islands, to determine through what place or places the Polynesians reached their present settlements. Funds sufficient for one year's work, contributed by Bayard Dominic to Yale University, have been placed at the disposal of the museum trustees. The urgent need for a scientific study of the fast-changing Pacific is plain. It has been recognised in Australia, where a committee, appointed by the Universities of Melbourne and Sydney, has reported in favour of the establishment of fellowships in Pacific studies. If America studies eastern Polynesia, Australia still has Papua and the Western Islands.

THE preliminary programme of the annual meeting of the British Association for the Advancement of Science, to be held at Cardiff on August 24–28, has been issued from the offices at Burlington House. The previous meeting in that city was held in 1891, and there has been no meeting of the association in Wales since that date. The present president, Sir Charles Parsons, will hand over his office to Prof. W. A. Herdman, professor of natural history in the University of Liverpool, who will give in his presidential address a general survey of oceanography, and deal in detail with certain special problems and recent investigations, with particular reference to sea-fisheries, a topic not only of prime interest in connection with the food supply of the country, but also of special concern to the ports of the Bristol Channel. The programme announces a discourse at one of the general evening meetings by Sir Daniel Hall, of the Ministry of Agriculture, on "A Grain of Wheat from the Field to the Table," another pregnant subject at the present time. Sir Richard Glazebrook, lately Director of the National Physical Laboratory, will also deliver a discourse. A scientific exhibition in connection with the meeting is announced to be given in the museum exhibition room at the Cardiff City Hall, where the general reception room for the meeting will also be established. The sections will meet mostly in the University College and the Technical College, which, with the City Hall, belong to the fine range of public buildings which surround Cathays Park. Scientific excursions will be organised in connection with the work of several of the sections. A civic reception by the Lord Mayor is announced, as is also a garden party for members, given by Lord Treowen, president of the National Museum of Wales (which has its headquarters at Cardiff). Among other fixtures is a special service in St. John's Church, Cardiff, on the Sunday after the meeting, at which Dr. Barnes, Canon of Westminster, will preach.

PRINCE ALBERT will preside at the Royal Aeronautical Society's Wilbur Wright lecture, which will be delivered at the Central Hall, Westminster, on June 22, at 8.30 p.m., by Commander Hunsaker, upon the subject of "Naval Architecture in Aeronautics."

THE Academy of Natural Sciences of Philadelphia has conferred the Hayden memorial medal for 1920 on Prof. T. Chrowder Chamberlin, professor emeritus of the University of Chicago, in recognition of his distinguished services to geological science. This medal is presented every three years for distinguished accomplishments in geology or palæontology.

THE twenty-fifth annual congress of the South-Eastern Union of Scientific Societies will be held at Eastbourne on June 2–5. On the evening of Wednesday, June 2, the president-elect, Sir Edward Brabrook, will deliver his presidential address. Other items in the programme are:—The Glaciation of the South Downs, E. A. Martin; First Steps in a Local Survey, C. C. Fagg; Recent Discoveries in Insect Mimicry, Prof. E. B. Poulton; Report of Mosquito Investigation Committee; and Migration of Lepidoptera, R. Adkin.

THE possibilities of cotton-growing in South America are discussed at length by Mr. G. McC. McBride in the *Geographical Review* for January (vol. ix., No. 1). Up to the present South America has produced annually scarcely 2 per cent. of the world's total output. Mr. McBride shows reasons for believing this could be greatly increased. The principal increase must come from the eastern highlands of Brazil. In the São Paulo region it is already competing with coffee, which suffers more than cotton from frosts. Labour and transport are the factors which limit its growth at present, but as these are gradually overcome Brazil will be able to export cotton on a considerable scale. Other possible cotton lands occur in the plains of northern Argentina and Paraguay, and in the coastal valleys of Peru.

TOWARDS the end of March last a meeting was held in Brussels of the scientific committee of the Solvay International Institute of Physics, and it was resolved, upon the recommendation of the executive committee, to resume the work of the institute, which had been interrupted by the war. New physical councils will be summoned from time to time, similar to those formed in 1911 and 1913. The president referred to the debt which the scientific committee owed to Dr. R. B. Goldschmidt, of Brussels, for the services rendered by him to the institute during the early years of its foundation. The members of the committee were Prof. H. A. Lorentz (president), Haarlem; Mme. Curie, Paris; Sir W. H. Bragg, London; M. Brillouin, Paris; Prof. H. Kamerlingh Onnes, Leyden; Prof. Knudsen, Copenhagen; Prof. A. Righi, Bologna; Sir Ernest Rutherford, Cambridge; and Prof. E. Van Aubel, Ghent.

Majors McKendrick and Morison have investigated statistically the occurrence of cases of influenza on shipboard, from which they deduce a mean incubation period in this disease of 32·7 hours, some 90 per cent. of the cases having an incubation period within two days (*Indian Journal of Medical Research*, vol. vii., No. 2, p. 364).

In a general review of influenza in *Medical Science: Abstracts and Reviews* (vol. ii., No. 2) the influenza epidemic of 1918–19 in Switzerland is surveyed. It is estimated that there were 2½ million cases. The case mortality was 1·1 per cent.; 65 per cent. of the cases occurred between fifteen and forty-nine years of age, and only 5 per cent. in persons of fifty and more. The total deaths were 17,575, a much heavier death-roll than that caused by other epidemic diseases.

Attention is directed in a paper by Mr. Mottram and Mr. Clarke (*Archives of Radiology and Electrotherapy*, No. 237, April, 1920) to the reduction in the number of the white blood corpuscles in those handling radium for curative purposes, a reduction amounting to ¾–⅔ of the normal number. They estimate that the physician-in-charge receives daily about 1·4 per cent. of the total radiation received by a patient during a course of treatment for cancer, and in ten weeks the same quantity of radiation as the patient.

The Committee on Food and Nutrition of the National Research Council, Washington, U.S.A., has just issued a report on meat and milk in the food supply of the nation which gives some interesting facts on the relative values of these two important dietary substances in comparison with the value of the food required to produce them. The Committee supports the British estimates on the same subject, viz. that the good milch cow returns 20 per cent., the poor milch cow 12 per cent., and the good beef steer only 6 per cent. of the energy-value of the food consumed. Crops grown on a given area may be expected to yield four to five times as much protein and energy for human consumption when fed to dairy cows as when used for beef production.

An address on the work of the Medical Research Committee was delivered by its secretary, Sir Walter Fletcher, to Members of Parliament at the House of Commons on March 9, and has been published in pamphlet form by the Research Defence Society. The history of the committee was first briefly sketched. Some 50,000*l.* a year has hitherto been devoted to the advancement of medical research, but the Treasury has announced that in the immediate future 125,000*l.* per annum is to be allocated for this purpose. Sir Walter Fletcher then described some of the researches that have been prosecuted by means of these funds. A disease, bilharziasis, due to a parasitic worm, is very prevalent in Egypt. Its life-history was unknown, and Dr. Leiper, of the London School of Tropical Medicine, was sent out to investigate. He found that the bilharzia worm passes part of its life-cycle in certain fresh-water snails, from which larval forms hatch out; and these constitute the infective agents. They soon die, however, unless they enter the human host, so that water kept for twenty-four hours is safe. This work cost less than 500*l.*, but bids fair in time to eradicate bilharziasis. Trench nephritis, a kidney disease, was very prevalent during the war. Investigations into its causation indicated that it is probably of an infective nature. Means were devised by which the efficiency of the kidney could be gauged, and it was possible to decide which of the thousands of cases at the base hospitals were likely to grow worse and should be sent home, and which could probably soon go back to duty. The same tests have been employed since in judging claims for pensions based upon supposed damage to the kidneys. By this means it is estimated that the Pensions Ministry has saved, during the first year, no less than 150,000*l.*; yet the total cost of this piece of work was somewhere between 2000*l.* and 3000*l.* Sir Walter Fletcher put in a plea for the better remuneration of scientific research, and the address was followed by an interesting discussion.

In the *British Journal of Psychology* (vol. x., March) Mrs. S. Brierley discusses the present attitude of employees to industrial psychology. She finds, in talking to working-men, much opposition to the suggested introduction of psychological methods into industry—an opposition which cannot be dismissed as characteristic of the more ignorant and less skilled workman. Several reasons for this attitude of mind are considered, of which the most vital seems to be the not unreasonable fear that the introduction of these methods will inevitably lead to an increase of monotony and a diminution in the possibility for initiative or creative work on the part of the individual worker; some of these so-called scientific methods do seem to imply that the manager is to be the brains of the machine, and the worker merely the muscles. It is unfortunately only too true that some enthusiastic exponents of these methods have allowed their enthusiasm to limit their point of view to increased production, and in so doing they have lost sight of the effect on the individual worker. The problems of monotony, mechanisation, specialisation, and self-government must be considered not only as bearing on increased output, but also as affecting the whole development of the worker; work must offer an outlet for the healthy satisfaction of the creative impulse. The author raises many problems connected with present-day industry and shows what psychology as applied to industry has to face before it can win the whole-hearted support of the workers. The paper should prove interesting to all whose scientific work brings them into contact with individual workers in industry.

Since the early experiments of Cuénot, Castle, Miss Durham, Little, and others on the inheritance of coat-colour in mice, these animals have been a favourite subject for the study of spotting as well as of self-colour. In a recent paper by Sô and Imai (*Journal of Genetics*, vol. ix., No. 4) the authors distinguish two factors concerned in spotting, one of which (D) is epistatic to self-colour, which it modifies to the "Kasuri" pattern characterised by fine silvered markings. When the recessive spotting allelomorph (S′) of self-colour (S) is present with the epistatic factor, a white animal with dark eyes known as "Daruma" (snowman) is produced. Mice which are homozygous for D fail to develop whether S or S′ is present in addition. D is, therefore, a lethal factor, and can only appear in the heterozygous condition, as is well known to be the case with yellow mice. By this analysis it is shown that a varied and apparently continuous series of stages from dark-eyed white through spotting to self-colour depends upon two pairs of factors.

MR. T. W VAUGHAN furnishes a comprehensive account of the American Tertiary, Pleistocene, and Recent coral-reefs in Bulletin 103 of the U.S. National Museum, pp. 189–524, 1919, as the fore-part of a paper describing fossil corals from the zone of the Panama Canal. No naturalist—and in this term we of course include the geologist who strives to understand the past—can afford to overlook this important summary of recent work. Some readers may be startled by the statement that "the theoretic possibility of the progressive change of a fringing reef into a barrier, and later into an atoll, according to the Darwin-Dana hypothesis, may not be denied, but no instance of such a transformation has as yet been discovered." But the author again and again emphasises the upward growth of coral-reefs in keeping pace with the submergence of the platforms on which they first arose. The discussion of these platforms and of their pre-Glacial age is full of interest; but Mr. Vaughan rightly points out that the question of their modes of origin does not affect the question of reef-growth. Murray's theory of solution to account for lagoon depths is regarded as "entirely disproved," and every credit is given to Dr. Guppy and Admiral Sir J. Wharton for their views on the relation of reefs to submarine platforms. The corals that result in barrier-reefs flourish, as Guppy urged, at some distance from a shore, because they are there removed from deleterious sediments; the reef thickens, as Wharton perceived, by submergence of its base. In the case of Australia, though not as a general proposition, Mr. Vaughan believes that this submergence can be accounted for by the rise of water during "deglaciation." The effects of drift-currents in developing and controlling the form of atolls on an open platform may be regarded as well established.

THE Italian State Department has now resumed publication of its Reports of the Aeronautics Experimental Institution (*Rendiconti dell' Istituto sperimentale aeronautico*). No. 1 of the new series just to hand contains an exhaustive article on the treatment and preservation of wood. The first part of this important monograph deals with the botanical aspect of the subject; the second part with the theory of timber preservation, including drying and seasoning; the third part with the practical side of timber seasoning and impregnation with preservatives; while part iv. is devoted to methods of testing (both physical and mechanical).

MEASURES are being taken to reorganise and extend various scientific services in French Indo-China. M. Aug. Chevalier, writing in *La Géographie* for April (vol. xxxiii., No. 4), gives some account of the plans. The agricultural, forest, and survey departments had fallen into neglect when the present governor-general in 1917 took steps to revive them. Several experimental agricultural stations and agricultural schools have been founded, and this year work was begun on the building of a central scientific institute at Saigon, to which the agricultural service of Indo-China and the botanic gardens at Saigon are to be attached. The institute will conduct experiments in the growth of rubber, coffee, tea, and rice; study the flora and products generally of Indo-China; and conduct researches on plant diseases. It is also proposed to start a marine station. The Government has provided funds for a scientific library and the issue of a monthly agricultural bulletin.

NO. 23 of the Proceedings of the Dutch Meteorological Institute is devoted to three papers by Miss A. van Vleuten on the possibility of accounting for the daily variations of the earth's magnetic field by a system of electric currents external to the earth and the currents within the earth's surface induced by them. In 1889 Schuster concluded that such was the case. Since that date both Fritsche and Steiner have examined the data available, and concluded that it did not support the hypothesis. In view of this difference of opinion Miss van Vleuten has again analysed the daily variation of the field, and resolved it into an external and an internal part. The two show that the principal terms of the Gauss expansion do not support the hypothesis, although the higher and less important terms are in agreement with it. In a further paper the author, by comparing the terms of the potential calculated, first, from the north component, and, secondly, from the east component of the field, shows that the daily variation of the field does not possess a potential, although it is, of course, always possible to deduce part of it from a potential.

THE physiological aspect of flying at high altitudes engages the attention of Dr. Guglielminetti in *Génie Civil* for March 20. The experiences of mountaineers, balloonists, and airmen who have flown to great heights are reviewed in turn. From tests carried out in the laboratory, and from the experience of Mosso and Agazotti (of Turin), Dr. Guglielminetti is inclined to the opinion that the physiological disturbances caused at altitudes below 8000 metres are due to anoxyphemia, and above 8000 metres to acapnia. While the use of respirators having suitable reducing-valves controlled automatically by the varying pressure at different altitudes would no doubt afford a fairly satisfactory solution, the better way lies in the design of suitable closed cabins in which the air-pressure is maintained constant by compressing the air taken in from outside. M. Louis Breguet has already suggested a design of aeroplane in which the pilot and passengers would be so enclosed. The excess of air necessary for the engine at high altitudes would probably be supplied by a turbine driven by the exhaust gases, such as has been suggested by Prof. Rateau.

The report of the Council of the Illuminating Engineering Society, presented at the annual meeting on May 11, contains an interesting record of the past session's work. Papers and discussions dealing with photometry, camouflage, colour-matching, motor-car head-lights, and lighting conditions in mines have been arranged, the last in co-operation with the Council of British Ophthalmologists and the Royal Society of Medicine. The various committees working under the society, notably that conducting an inquiry into eyestrain in kinemas, afford evidence of similar co-operative effort. Special attention has been devoted to industrial lighting in relation to health and safety, and it is hoped that before long general statutory provision for adequate lighting will be introduced into the Factory Acts. The society hopes now to be able to resume its participation in the international treatment of illumination, and is represented in the person of its hon. secretary at the congress of the Royal Institute of Public Health taking place this month in Brussels. Following the presentation of the annual report, a paper on portable kinema outfits was read by Capt. J. W. Barber, several novel forms of apparatus being shown.

The work of Willstätter and his collaborators has imparted considerable interest to that branch of biochemistry which includes the formation of anthocyanins in plants. A suggestive paper on the subject is contributed to the April issue of the *Biochemical Journal* by O. Rosenheim. This author has isolated in a crystalline form the red pigment of the young leaves of the grape-vine, and has shown that it is most probably identical with oenidin, the non-sugar component of the pigment of the purple grape. This is the first instance on record in which the red pigment of leaves consists of free anthocyanidin. The vine-leaves have been shown to contain also a colourless modification of the pigment, possibly in combination with a carbohydrate or other complex. For this compound the general name "leuco-anthocyanin" is suggested; it is converted into anthocyanidin by strong acids. The only representative of the family Vitis characterised by the production of free anthocyanidin is the European species, *Vitis vinifera,* and it is pointed out that this biochemical test may prove useful in the investigation of genetic problems.

An interesting paper by Eiichi Yamasaki on "The Chemical Kinetics of Catalase" has recently appeared in the Science Reports of the Tôhoku Imperial University (vol. ix., No. 1). The property formerly attributed to all enzymes of accelerating the decomposition of hydrogen peroxide is really a specific property of catalase, which is contained as an impurity in most enzyme preparations. The catalase used by Yamasaki was obtained from the edible sprout of a certain bamboo, *Phyllostachys mitis,* Riv. The velocity of decomposition of hydrogen peroxide by catalase is, in general, proportional to the concentration of the enzyme and of hydrogen peroxide, but the activity of the catalase decreases in the course of the reaction. As to the cause of this decrease in activity, the author can only conclude that it is due to the substrate and product of reaction, hydrogen peroxide and oxygen; and the rate of decrease is approximately proportional to the principal reaction. The decrease in activity is not to be attributed to change in concentration of hydrogen ions. It has already been found that in a very dilute solution of hydrogen peroxide and a comparatively concentrated solution of catalase the relative activity increases in the first stage and then decreases gradually. This behaviour may be attributed to the facts (1) that the ordinary reaction would be carried out at a rate somewhat higher than that which is calculated according to a first-order reaction; (2) that the rate is retarded with hydrogen peroxide and oxygen in ordinary cases; (3) that such effects are observed only in the course of reaction in very diluted solutions, because the concentration of both the substrate and the product are very small, *i.e.* the velocity constant has a maximum value; and (4) that the retardation proceeds with the measurable velocity, which is approximately proportional to the principal reaction.

The Rotary Club of London, composed of about three hundred members, each representing a different trade or profession, and connected with twenty-five other rotary clubs in other parts of the British Isles, has undertaken the urgent and important work of endeavouring to find posts for demobilised men out of employment We are asked to direct attention to this most praiseworthy task and have much pleasure in doing so. Thousands of capable officers and men who were on active service during the war are now seeking employment, and particulars of vacancies of any kind may usefully be sent to Mr. Edward Unwin, jun., at the "Rotary Room," Horrex's Hotel, Norfolk Street, Strand, London, W.C.2.

Mr. H. Martin Leake, Director of Agriculture, United Provinces, India, is publishing through Messrs. W. Heffer and Sons, Ltd., "The Bases of Agricultural Practice and Economics in the United Provinces, India," in which the history of agriculture is traced; the fundamental facts of agricultural practice and economics are described; the lines upon which agricultural practice is likely to develop are brought out, and emphasis is laid upon the fact that recent advances in scientific knowledge have made it possible for directed, as opposed to undirected or empirical, methods to be employed. It further indicates the weaknesses of the present economic system, and develops the idea of co-partnership in the land between landlord, tenant, and Government.

Messrs. Dulau and Co., Ltd., 34 Margaret Street, W.1, have just issued a catalogue (No. 82) of an important botanical library recently purchased by them, the volumes in which are now offered separately. The works listed number 593, and many are scarce. The catalogue is one likely to interest all students of botany, and copies may be had of Messrs. Dulau upon application.